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Common Functional Groups

General Formula	Example	Name
RH	$CH_3CH_2CH_3$	**Alkane** (Alkanes have no functional group.)
$RCH{=}CH_2$	$CH_3CH_2CH{=}CH_2$	**Alkene** (The functional group is the carbon–carbon double bond.)
$RC{\equiv}CH$	$CH_3C{\equiv}CH$	**Alkyne** (The functional group is the carbon–carbon triple bond.)
ArH		**Arene** (A six-membered ring with three double bonds has different reactions than an alkene so it is given a different name. Arenes or **aromatic rings** can have alkyl or other groups attached to the ring.)
RX	$CH_3CH_2CH_2Cl$	**Alkyl halide** (The functional group is the carbon–halogen bond.)
ROH	CH_3CH_2OH	**Alcohol** (The functional group is the C—O—H.)
ROR	$CH_3CH_2OCH_3$	**Ether** (The functional group is the C—O—C . The alkyl groups on the O can be the same or different.)
RNH_2	$CH_3CH_2CH_2NH_2$	**Amine** (The C—N is the functional group. The other H's on the N can be replaced with alkyl groups.)
$R\overset{\overset{O}{\|}}{C}H$	$CH_3CH_2\overset{\overset{O}{\|}}{C}H$	**Aldehyde** (The functional group is the C=O with at least one H on the C.)
$R\overset{\overset{O}{\|}}{C}R$	$CH_3\overset{\overset{O}{\|}}{C}CH_3$	**Ketone** (The functional group is the C=O with two alkyl groups on the C. The alkyl groups need not be the same.)
$R\overset{\overset{O}{\|}}{C}OH$	$CH_3CH_2\overset{\overset{O}{\|}}{C}OH$	**Carboxylic acid** (The functional group is the $\overset{\overset{O}{\|}}{C}OH$.)
$R\overset{\overset{O}{\|}}{C}Cl$	$CH_3\overset{\overset{O}{\|}}{C}Cl$	**Acyl chloride** (The functional group is the $\overset{\overset{O}{\|}}{C}Cl$.)
$R\overset{\overset{O}{\|}}{C}O\overset{\overset{O}{\|}}{C}R$	$CH_3\overset{\overset{O}{\|}}{C}O\overset{\overset{O}{\|}}{C}CH_3$	**Acid anhydride** (The functional group is the $\overset{\overset{O}{\|}}{C}O\overset{\overset{O}{\|}}{C}$. The alkyl groups may be different.)
$R\overset{\overset{O}{\|}}{C}OR$	$CH_3\overset{\overset{O}{\|}}{C}OCH_2CH_3$	**Ester** (The functional group is the $\overset{\overset{O}{\|}}{C}OC$.)
$R\overset{\overset{O}{\|}}{C}NH_2$	$CH_3CH_2\overset{\overset{O}{\|}}{C}NHCH_3$	**Amide** (The functional group is the $\overset{\overset{O}{\|}}{C}N$. The other groups on the N may be H's or alkyl groups.)
$RC{\equiv}N$	$CH_3CH_2CH_2C{\equiv}N$	**Nitrile** (The functional group is the carbon–nitrogen triple bond.)